Health and
Safety
Commission

# Work with asbestos insulation and asbestos coating

## Approved Code of Practice and Guidance Note

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# Preface

In June 1978 the Advisory Committee on Asbestos, of which I was Chairman, published its first report 'Work on thermal and acoustic insulation and sprayed coatings'.*

The report discussed the health hazards associated with particular work with asbestos and as its title suggests drew attention to the locations in which asbestos-based insulation materials and coatings might be found. It pointed out that whilst asbestos is now little used in insulation work and not used at all in sprayed coatings, it had been widely used in the past throughout Britain in buildings as well as for lagging on pipework, boilers and other plant, in rail vehicles and in ships. Thus, for a period into the foreseeable future, a large quantity of asbestos-based material will need to be removed or disturbed for one reason or another, and people who are involved will need to be aware of the techniques to adopt in order to minimise human exposure to asbestos dust.

During its deliberations the advisory committee concluded that this large quantity of asbestos could present a continuing threat to health and was very much aware that people in a diverse range of occupations could come into contact with it. The people most directly affected are those who work in insulation, dismantling and demolition. Much of this work is done by specialist firms but some large organisations such as petrochemical companies, the Ministry of Defence and British Railways Board frequently use their own personnel to carry out de-lagging in ships, buildings, plant and rolling stock. In addition, a person employed in maintenance duties related either to the building trade or to engineering, at any kind of premises might be in a position where he would be obliged to remove asbestos-based lagging or coating to facilitate, for example, repair to pipes or plant, or to permit a boiler inspection to be carried out.

The Advisory Committee's first report contained five recommendations, one of which (Recommendation 4) stated 'We recommend that a code of practice should be drawn up and approved under Section 16 of the HSW Act on methods of carrying out work on asbestos-based insulation and sprayed coatings to help people comply with the asbestos regulations. This code of practice should include advice on methods of work designed to minimise the generation of dust, suitable types of protective clothing and respiratory protective equipment, the training of the work force and supervisors and the provision of information to workers, including relevant statutory provisions, codes of practice and guidance notes'.

After taking account of comments received on the report, this recommendation was accepted by the Health and Safety Commission who directed the Health and Safety Executive to prepare such a code. A draft approved code of practice and draft guidance note was published for comment in August 1979. The final drafts for the approved code and for the guidance note were prepared with the benefit of comments received and I should like to thank all who responded or who were involved in the preparation of a response.

In the early stages of preparing the approved code of practice it became clear that a number of relevant operations were not subject to the Asbestos Regulations 1969 but had to comply with equivalent standards under the Health and Safety at Work etc. Act 1974. To take account of this it was decided that the best way to provide the comprehensive advice, for which the Advisory Committee on Asbestos was convinced there was a need, was to produce an approved code of practice related to all appropriate existing legislation with a related guidance note. For convenience, a summary of relevant statutory provisions has been included.

Many readers of this document will know that action to implement Recommendations 1, 2, 3 and 5 of the Advisory Committee's first report (concerning the use of asbestos in insulation and coatings and the licensing of work with these materials) is being taken separately and will be subject to formal consultation. Comments received on the advisory committee's final report, published in October 1979,* are also being considered by the Health and Safety Commission and Ministers to decide on an appropriate response to the advisory committee's recommendations.

Meanwhile the approved code of practice and guidance note have been prepared to help reduce the risks to health of people at work and members of the public from exposure to asbestos associated with particular types of work.

W J SIMPSON (*Chairman*)
*Health and Safety Commission*

*HMSO

## Notice of approval of the code of practice for work with asbestos insulation and asbestos coating by the Health and Safety Commission

By virtue of Section 16(1) of the Health and Safety at Work etc. Act 1974 and with the consent of the Secretary of State for Employment the Health and Safety Commission has on 7 April 1981 approved the Code of Practice entitled 'Work with Asbestos Insulation and Asbestos Coating'.

The Code of Practice gives practical guidance with respect to the Asbestos Regulations 1969 (SI 1969 No 690) and the Health and Safety at Work etc. Act 1974.

The Code of Practice comes into effect on 1 October 1981.

Signed
JANET DAVIS
*Secretary to the Health and Safety Commission*
7 April 1981

# Approved Code of Practice

## Introduction

This code of practice has been drawn up on the basis of consultations with representatives of the Confederation of British Industry, the Trades Union Congress, independent experts and the Health and Safety Executive.

The Code has been approved by the Health and Safety Commission, with the consent of the Secretary of State, under Section 16(1) of the Health and Safety at Work etc. Act 1974 for the purpose of providing practical guidance on the precautions to be observed in work involving asbestos-based thermal and acoustic insulation and sprayed coatings in compliance with existing legislation.

Although failure to comply with any provision of this code is not in itself an offence, that failure may be used in criminal proceedings as evidence that a person has failed to discharge his duty under a section of the Health and Safety at Work etc. Act 1974 or has contravened a regulation, if the provision of the code relates to that section of the Act or to that regulation. In such a case however it will be open to the person charged to satisfy the court that he has discharged his duty or complied with the regulation in some other way.

The code has been prepared to provide practical guidance in respect of the Asbestos Regulations 1969 and where the regulations apply their specific requirements should be complied with. At premises or in work situations where the Asbestos Regulations 1969 do not apply the general requirements of the Health and Safety at Work etc. Act 1974 provide an equivalent standard based on the regulatory provisions.

Words and expressions which are defined in the Asbestos Regulations 1969 or in the Health and Safety at Work etc. Act 1974 have the same meaning in this code unless the context requires otherwise.

In the section of the code which deals with the provision of protective equipment the term 'approved respiratory equipment' is used. In this context the term refers to the statutory approval of equipment by HM Chief Inspector of Factories under the Asbestos Regulations 1969 and certain other specific legislation.

The objectives of this code of practice are to provide practical guidance on the relevant legislation concerning the risk to health from asbestos during work involving thermal and acoustic insulation including structural fire protection and sprayed coating and to ensure that exposure to all forms of asbestos dust is reduced to the minimum that is reasonably practicable. It is not intended that the code should cover work involving products such as asbestos cement, floor tiles containing asbestos and asbestos board which may have thermal or acoustic properties incidental to their main function. Neither is it intended to cover the valuable contribution which can be made to increasing the health and safety of workers with asbestos insulation and asbestos coatings by measures such as health surveillance which are not required by law.

# Principles of Protection

## Information, instruction and training

**Relevant legislation**

Asbestos Regulations 1969 *Regulation 8(5)* Health and Safety at Work etc. Act 1974 *Section 2(1) and 2(2)*

**1** Adequate information, instruction and training should be given to workers to ensure that they are aware of:
(a) the health risks associated with asbestos;
(b) the reasons for and the nature of precautions to be observed to protect themselves and other people, including their families who may be affected;
(c) how to make use of the protective equipment and other safeguards; and
(d) their duties under the Asbestos Regulations 1969 and the Health and Safety at Work etc. Act 1974.

**2** Effective steps should be taken to ensure that all persons entering the premises where asbestos insulation work is being undertaken are made aware as soon as is reasonably practicable of the nature of the operation and the matters likely to affect their health and safety.

## Material, plant and process control

**Relevant legislation**

Asbestos Regulations 1969 *Regulation 7* Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2), 3(1) and 3(2), 4(1) and 4(2) and 7*

**3** Material and process controls such as physical containment and waste management procedures should be set up to ensure that asbestos dust is kept within the asbestos working area so that persons outside this working area are exposed only to a level of asbestos dust which:
(a) is as low as is reasonably practicable; and
(b) does not exceed the appropriate hygiene standard.

**4** Only essential personnel, wearing suitable personal protection (see paras 6 to 15) should be allowed to enter the asbestos working area.

**5** Sufficient notices should be displayed at the approaches to and along the perimeter of every asbestos working area:
(a) to show that asbestos insulation work is being carried out; and
(b) to warn persons that they should not enter the asbestos working area without wearing the appropriate protective equipment.

## Personal protection

**Relevant legislation**

Asbestos Regulations 1969 *Regulations 8(1), 8(3) and 8(4) 18(3) and 19* Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2) 3(1) and 3(2) 4(1) and 4(2)*

**Respiratory protective equipment**

**6** Approved respiratory protective equipment should be provided for any person who is exposed or liable to be exposed to airborne concentrations of asbestos in excess of the hygiene standard.

**7** Selection of respiratory protective equipment should be based upon:
(a) the likely degree of the airborne hazard; and
(b) the degree of protection afforded by different types of respiratory protective equipment as stated in the terms of approval in Form 2486 published by the Health and Safety Executive (see Introduction).

**8** Care should be taken to ensure that such equipment is suitable and fits properly.

**9** Arrangements should ensure that no person uses respiratory protective equipment which has previously been used by another person unless it has been adequately cleaned and disinfected.

**10** All respiratory protective equipment should be properly maintained (see para 41).

### Protective clothing

**11** Protective clothing should be provided for any person whose body or clothing are liable to be contaminated by asbestos.

**12** Protective clothing is defined as clothing including head covering and footwear worn to prevent the body from being contaminated by asbestos.

**13** Personal clothing worn during asbestos work should also be classified as protective clothing if the outer protective clothing does not prevent it from being contaminated by asbestos.

**14** Protective clothing should be cleaned at suitable intervals (see paras 42 to 45).

**15** Protective clothing should be worn only:
(a) in the asbestos working area; and
(b) in changing facilities which are located adjacent to the working area.

**16** Where it has not been possible to locate the showering facilities and accommodation for clothing (see paras 17 – 26) adjacent to the working area additional overalls should be provided which operatives should wear only on their way to and from intermediate changing facilities and the main hygiene and changing facilities. It should be noted that operatives should wear their respiratory protective equipment when moving between the facilities.

## Personal hygiene

### Relevant legislation

Asbestos Regulations 1969 *Regulations 14, 18(1) and 18(2)* Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2) 3(1) and 3(2) 4(1) and 4(2) and 7*

**17** Adequate showering arrangements should be made to enable asbestos workers to meet a high standard of cleanliness to reduce the risk of spreading asbestos contamination.

**18** Showers should be so placed as to prevent the spread of contamination by asbestos from protective clothing to personal clothing and from one changing room to another. This can be achieved by separating the changing and storage accommodation for protective equipment from that for personal clothing and footwear not worn during working hours. Where space permits and where the risk of contamination cannot otherwise be effectively controlled, the showers should be placed between the accommodation for personal clothing and that for protective clothing.

**19** The facilities should be laid out to prevent workers having to retrace their steps and thus risk contamination.

**20** The facilities should be:
(a) designed to enable them to be kept clean at all times; and
(b) adequately heated when in use.

**21** Adequate provision should be made for the vacuum cleaning of personal protective equipment (see paras 42 – 44).

22 Sufficient lockers, baskets, hangers, hooks or other storage appliances should be provided in the clothing accommodation to cope with the needs of the maximum number of persons who will use it at any one time.

23 The number of showers provided should enable as many people as are expected to use them at any one time to do so without undue delay.

24 The showering facilities should be provided with:
(a) an adequate supply of running hot and cold or warm water;
(b) soap or other cleaning materials;
(c) nailbrushes; and
(d) towels or other means of drying. Persons should not be permitted to bring their own towels from home.

25 Persons using the facilities should be made aware of the procedure to be followed in their use. The procedure should be drawn up to ensure that no contaminated clothing or equipment can spread contamination and any asbestos dust remaining on the body of a worker after leaving the working area is removed before he enters the clean (personal clothing) end of the changing area.

### Intermediate changing area

26 Wherever possible, in order to prevent operatives' protective equipment from spreading contamination, the showering facilities and accommodation for clothing not worn during working hours should be located adjacent to the working area. However, where it is not possible to observe this principle in full an intermediate changing area where personnel should change into different ('transit') overalls before going to the main facilities should be provided adjacent to the working area.

## Control of waste asbestos

### Relevant legislation

Asbestos Regulations 1969 *Regulations 15, 16 and 17* Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2) 3(1) and 3(2) 4(1) and 4(2) and 7*

27 Procedures should be set up for dealing with waste asbestos which should take the following into account:
(a) provision of a sufficient number of suitable waste receptacles;
(b) transfer of waste material from surfaces to the receptacles;
(c) transfer of the receptacles from the working area to the disposal point; and
(d) action to be taken in the event of spillage.

28 Suitable arrangements should be made for the cleaning of receptacles it is proposed to re-use.

29 A waste receptacle is suitable when it is:
(a) impermeable;
(b) sufficiently strong to withstand the treatment it is liable to receive during handling and disposal;
(c) capable of being effectively sealed to prevent the escape of asbestos dust; and
(d) boldly marked 'BLUE ASBESTOS—DO NOT INHALE DUST' when intended to contain crocidolite.

30 Any identifying marking on a receptacle should be durable. Tie-on labels should not be used.

31 Asbestos waste should not be permitted to remain on the floors or other surfaces of the workplace at the end of the working period and should be transferred without delay to a suitable receptacle.

32 Receptacles should be sealed and their outsides cleaned before being removed from the working area.

**33** Where asbestos waste is in liquid or sludge form it should be transferred directly to a clearly marked closed receptacle.

**34** Receptacles containing asbestos waste should be removed from the working area to a suitable storage area without delay. Such storage areas should be so positioned or arranged to ensure that the receptacles containing asbestos waste are not liable to damage.

**35** Any spillage of asbestos waste occurring at any time during the course of the work should be removed and transferred to a suitable receptacle without delay.

## Cleaning

### Relevant legislation

Asbestos Regulations 1969 *Regulations 9, 10, 11(1) and 11(5)*
Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2) 3(1) and 3(2) 4(1) and 4(2) and 7*

**36** Cleaning procedures should be set up to ensure the cleanliness of the following:
(a) the work area;
(b) plant and equipment;
(c) hygiene facilities;
(d) respiratory protective equipment; and
(e) protective clothing.

### Cleaning of plant and premises

**37** Wherever practicable, a dustless method of cleaning should be used for the cleaning of plant and premises.

**38** Cleaning procedures should include instruction on:
(a) situations where methods of cleaning which cause dust may be used; and
(b) the special conditions which will then need to be observed.

**39** Special conditions should include:
(a) the type of approved respiratory protective equipment to be worn to take account of the higher dust levels;
(b) the methods to be adopted to reduce dust levels; and
(c) the arrangements to prevent dust escaping from the working area.

### Special precautions at the end of the work

**40** When a working area is ready to be handed back for normal occupation, a visual site inspection should be carried out after cleaning to ensure that debris has been removed, and where necessary monitoring carried out to ensure that the level of airborne asbestos dust does not exceed the appropriate hygiene standard set out in Guidance Note EH10.*

### Cleaning of respiratory protective equipment

**41** Respiratory protective equipment should be cleaned:
(a) as often as is necessary to ensure that persons who are required to use or handle it are not put at risk from asbestos; and
(b) prior to each shift or working period.

### Cleaning of protective clothing

**42** A cleaning procedure should be devised to ensure that all asbestos contaminated clothing is cleaned as frequently as necessary to ensure its efficiency in protecting the wearer. The procedure should be explicit and include particulars of:
(a) frequency of cleaning;

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(b) method of cleaning; and
(c) method of despatch for cleaning.

**43** In the case of waterproof protective clothing, showering will be regarded as an adequate means of cleaning.

**44** Cleaning of protective clothing should be carried out with vacuum cleaning equipment fitted with a high efficiency filter whenever the wearer leaves the working area.

**45** In addition, protective clothing which has been worn should be suitably cleaned at least once in every period of seven days.

**46** Clothing requiring laundering or dry cleaning should be sent only to a launderer or dry cleaner who:
(a) is aware of the risks of health associated with asbestos; and
(b) is equipped for and undertakes to handle asbestos contaminated clothing.

**47** Asbestos contaminated clothing despatched from a site for cleaning should be sealed in containers which are:
(a) strong enough to remain dust tight during transit and handling; and
(b) boldly marked 'asbestos contaminated clothing'.

**48** Under no circumstances should workers be permitted to take home asbestos contaminated clothing.

## Maintenance of control measures

**Relevant legislation**

Asbestos Regulations 1969 *Regulations 7(1), 7(3), 8(2) and 12*
Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2) 3(1) and 3(2) 4(1) and 4(2) and 7*

**49** The objective of the maintenance is to ensure that plant and equipment are maintained in efficient working order and in good repair.

**50** Maintenance procedures should be drawn up to suit each case and the procedures should make clear:
(a) which plant and equipment require maintenance;
(b) when and how the maintenance should be carried out;
(c) who is responsible for the maintenance; and
(d) how defects are to be remedied.

**51** Procedures for remedying defects should state provisions for replacement or repair. When immediate action is not necessary and the equipment continues in use, specific time limits should be set for completion of remedial action.

**52** To ensure all plant and equipment necessary for controlling dust receives appropriate maintenance, records of such work should be kept.

**53** Records should be kept readily available.

**54** The employer should consult with safety representatives about the manner in which the records are made available to enable them to see that the necessary tests are being carried out and that the results are satisfactory.

## Air monitoring

**Relevant legislation**

Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2) 3(1) and 3(2) 4(1) and 4(2) and 7*

**55** Monitoring to measure the concentration of asbestos in air should be carried out:

(a) during the work, as often as is necessary to ensure the effectiveness of the control measures in preventing the escape of asbestos from the working area (see paras 3 – 5); and
(b) at the end of the work to assess the suitability of the site for normal occupation.

**56** Monitoring and subsequent analytical techniques should be in accordance with established methods set out in guidance notes issued by the Health and Safety Executive.*

**57** Routine monitoring during the course of the work is not necessary in areas where respiratory protective equipment and protective clothing are needed.

**58** Suitable records should be kept of asbestos in air measurements.

## Prohibition of employment of young persons

**Relevant legislation**

Asbestos Regulations 1969 *Regulation 20*
Health and Safety at Work etc. Act 1974 *Sections 2(1) and 2(2)*

**59** Employees under the age of eighteen should not be employed in any operation involving the treatment and removal of asbestos insulation, the bagging of waste products removed in stripping operations or any other work associated with the operations where the level of asbestos dust in the air is likely to exceed the hygiene standards set out in Guidance Note EH10.*

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## Introduction

There are four main types of asbestos:
(a) amosite (known as brown asbestos)
(b) chrysotile (known as white asbestos)
(c) crocidolite (known as blue asbestos)
(d) fibrous anthophyllite

The guidance note covers asbestos used for purposes of acoustic and thermal insulation and sprayed coatings. The term 'asbestos insulation' used throughout includes sprayed coating unless the context dictates otherwise. It is not intended that the guidance note should cover work involving products such as asbestos cement, floor tiles containing asbestos and asbestos board which may have thermal or acoustic properties incidental to their main function. Neither is it intended to cover the valuable contribution which can be made to further safeguard the health of people who work with asbestos insulation or asbestos coatings by measures such as health surveillance which are not required by law.

### Composition of asbestos insulation

Insulation materials contain varying quantities of asbestos which may be of one type or a mixture of different types.

(a) *Sprayed asbestos coatings:*
The asbestos content of sprayed coatings is not normally less than 55%. The asbestos is usually amosite or crocidolite.

(b) *Thermal insulation of plant:*
Thermal insulation of services or process plant frequently consists of sectional insulation which may contain a considerable proportion of asbestos but in many instances the material is a minor part of the mixture together with other materials such as magnesia or diatomaceous earth. It is not uncommon, particularly with older installations, to find mixtures of the main types of asbestos present in varying quantities with other materials and these may be unevenly distributed.

### Occurrence of asbestos insulation

Asbestos has been widely used for the thermal insulation of steam generating and process plant, and for some refractory linings in the steel making and metal industries. It is also commonly used in buildings for the fire protection of structural steelwork, fire breaks in service ducts, thermal and acoustic insulation as well as for thermal insulation of boilers, ancillary plant and pipework. Considerable quantities of asbestos insulation materials have been used in the thermal insulation of ships, railway locomotives and some rolling stock including carriages. Dismantling or repair of any of these may result in some contact with asbestos materials.

### Dust levels during removal of asbestos insulation

Occupational hygiene measurements taken at a number of sites give some indications of the airborne dust concentration which may be anticipated during the process of asbestos insulation removal. The use of wet stripping techniques will tend to reduce dust levels during the process but may increase cleaning problems at the end of the work. They should not therefore be regarded necessarily as the obvious choice.

| *Technique* | *Dust level* |
|---|---|
| (a) removal undertaken in a dry state | Frequently in the region of 80 – 100 fibres/ml but may well be in excess of these figures. |

| | |
|---|---|
| (b) removal of sprayed insulation by high pressure water jet | 20 – 40 fibres/ml |
| (c) using water sprays to dampen as removal progresses | 5 – 40 fibres/ml |
| (d) thorough soaking of insulation before removal | 1 – 5 fibres/ml |

These levels can give only an indication of the anticipated concentrations of asbestos dust and are entirely dependent upon the type of insulation material, the effectiveness of the dust suppression technique and the working procedure.

## Identification of Asbestos Insulation

**1** This is achieved by bulk sampling which entails:
(a) taking a sufficient number of samples of the insulation; and
(b) analysing the samples to detect and identify asbestos.

### Sampling and analysis of asbestos insulation

**2** Guidance on sampling and identification of asbestos in insulating materials is contained in Guidance Note EH10*.

## Treatment of Asbestos Insulation

### Notification of crocidolite

**3** Before carrying out any work to which the Asbestos Regulations 1969 apply and which involves insulation containing crocidolite, the person undertaking the work should give at least 28 days written notice to HM Factory Inspectorate or such shorter notice as it may agree to accept.

### Treatment of surfaces of insulation materials containing asbestos

**4** This guidance applies to all types of surface coatings which contain asbestos and consist either of sprayed applications or insulation materials used for thermal insulation of process plant.

**5** In time, the surfaces may become damaged by impact or abrasion, or they may become friable or lose adhesion with the substrate. These factors will allow the release of asbestos fibre to the atmosphere and action will be needed to prevent such release.

**6** Removal of asbestos insulation is a once and for all operation to remove the health risk, but in some cases the risk from the removal process will be greater than if the insulation were left in place effectively sealed.

**7** Sometimes complete removal of sprayed asbestos is not possible: for example, where areas of sprayed asbestos were applied during the construction operation and are inaccessible thereafter. In other cases, fibre release may occur as a result of impact damage or vermin attack where it may be possible to repair the damage and suitably seal the surface to prevent further release.

**8** Before a decision to remove or treat the asbestos can be taken, an assessment of the following is needed:
(a) the nature of the insulation and the asbestos type;
(b) the concentration of airborne asbestos;
(c) the condition of the insulation—whether the surfaces are damaged or friable and whether they are breaking away from the base. In these latter two conditions complete removal of the insulation will probably be necessary;
(d) whether the insulation is likely to be rubbed or otherwise damaged;
(e) whether the insulation is accessible or if major structural work would be necessary to allow its removal;
(f) what the comparative costs of removal or effective sealing are. These will include provision for isolation of the working area while the work is done, disruption of normal work and possibly evacuation of the building; and

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(g) whether insulation has been provided for statutory fire protection and will require replacement by other suitable materials.

### Precautions during sealing or encapsulation of asbestos insulated surfaces

**9** The specific precautions will depend upon the local situation and the type, extent and condition of the surface to be sealed.

**10** Where any of the following is involved, the area may need to be totally enclosed and sealed to prevent the escape of dust into the surrounding area (see paras 26 to 27):

(a) any surface containing crocidolite asbestos;
(b) cases where the surface is friable and liable to cause dust while the sealant is applied; and
(c) cases where the surface has to be broken (e.g. to remove previous sealant, to remove loose surface debris or to provide anchorage for new cladding or fixtures).

**11** Where the work is minor or the surface is not being disturbed it is normally sufficient to erect physical barriers and warning notices at least ten metres from the job. Any accidental damage which occurs during the job must be sealed without undue delay and the debris removed.

### Types of sealant and encapsulation systems

**12** There are many proprietory substances available for sealing and their selection for a particular job will depend on:
(a) the degree of protection required; e.g. the area may be vulnerable to impact damage or abrasion;
(b) wear life—surface toughness and flexibility required, e.g. the surface may require to be regularly decorated;
(c) type of surface—certain treatments may impair acoustic properties or adversely affect required flame-spread characteristics; and
(d) the condition of the original asbestos coating.

**13** The treatments generally available may be classified under three main headings:
(a) flexible and semiflexible polymeric or bituminous coatings;
(b) inorganic cementitious materials; and
(c) preformed sheets, panels or boards of metal, plaster board etc.

**14** Polymeric or bituminous coatings are normally applied by spray as water based emulsions but they may be solvent based. The finished surface has low/medium strength. Thicker polymeric coatings used in conjunction with glass fibre fabric can provide good impact resistance. The coatings may have some effect on flame spread characteristics and the manufacturer should be able to advise on the properties of the specific sealing system.

**15** Cementitious materials are normally in the form of fibrous or particulate filled cements activated on site by water. These materials are normally trowelled on to the surface of asbestos and provide a rigid hard wearing surface which can be additionally strengthened with expanded metal mesh to give a high impact resistance.

**16** Rigid sheeting may be used to clad asbestos sprayed surfaces or to provide false ceilings and walls. All joints should be properly made and sealed to provide total enclosure of the sprayed asbestos surface.

**17** After the insulation has been sealed or treated it should be marked to show the presence and type of asbestos beneath the coating and regularly inspected and maintained to a high standard.

### Preparation for sealing or encapsulation

**18** Before starting work on sealing or encapsulation, the following procedures should be undertaken:

(a) the working area should be segregated to ensure that asbestos dust is not released to other areas (see paras 26 to 27);
(b) persons within the segregated area should be provided with and use suitable respiratory protective equipment and protective clothing (see paras 32 to 52);
(c) the surfaces to be sealed should be cleaned using a vacuum cleaner fitted with a high efficiency filter to remove all loose debris and dust particles to ensure good adhesion of the coating to be applied; and
(d) damaged areas should be repaired.

## Control of Asbestos Dust

### Selection of stripping method

**19** Work at any particular site may involve a combination of techniques, but stripping methods can be broadly divided as follows:
(a) dry stripping;
(b) wet stripping; and
(c) stripping by high-pressure water jets.

### Dry stripping

**20** This technique involves removal of the asbestos insulation from surfaces in the dry state without using water to reduce the dust. The method will require consideration of the following points:
(a) because a high level of asbestos dust is raised in the process, a correspondingly high standard of approved respiratory protective equipment is required (see paras 32 to 52);
(b) a high standard of separation is required between the working area and other parts of the site to prevent dust escaping (see paras 26 to 27); and
(c) surfaces from which the insulation has been removed may require wire brushing and sealing to prevent subsequent release to the atmosphere of remaining fibres.

**21** Because the insulation remains dry, the problem of cleaning the working area at the end of the job may be considerably reduced. The method is essential where it is necessary to remove insulation near live electrical apparatus where water would create risk of electrocution. In some cases the water may cause damage.

### Wet stripping

**22** This technique involves thoroughly saturating the asbestos insulation before its removal. The addition of a wetting agent to the water is helpful. This method will require consideration of the following points:
(a) the initial introduction of water into the insulation is a highly specialised process and care and experience are necessary to obtain adequate diffusion;
(b) slurry containing asbestos may be produced which should be contained and not discharged to drains without adequate filtration;
(c) slurry left on surfaces after stripping is difficult to remove. Therefore when the area has been thoroughly cleaned by a wet method, it should be allowed to dry out and subsequently cleaned by means of a vacuum cleaner fitted with a high efficiency filter;
(d) surfaces from which the insulation has been removed may require wire brushing and sealing to prevent subsequent release to the atmosphere of remaining fibres;
(e) although less fibre is emitted in a wet process than when using dry techniques, suitable personal protective equipment will still be required (see paras 32 to 52);
(f) this method should be used only where electrical equipment in the working area has been isolated;
(g) water should be prevented from entering electrical equipment in the working area; and
(h) at the end of the work, a competent person should ensure that it is safe to restore the electrical supply.

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### Stripping by means of high pressure water jets

**23** This is a highly specialised technique where insulation is removed by high pressure water jets normally operating at pressures of about 2000 psi (138 bars) or above. It is usually limited to situations where, because of the difficulty in getting at sprayed coatings other techniques are not likely to work properly and also where a complete building (or large section) can be vacated. Work involving high pressure water jetting is subject to the Protection of Eyes Regulations 1974.

**24** This method will require consideration of the following points:

(a) the jet is sufficiently high powered to inflict serious injury by cutting or by water entering the flesh. Work using this technique should be:
  (i) undertaken only by persons who are adequately trained and experienced in it; and
  (ii) under the immediate control of a competent supervisor.

(b) an adequate number of warning notices marked 'Danger: high-pressure jetting' should be displayed outside the working area;

(c) water jetting equipment should be properly maintained;

(d) the high pressure jet should be controlled by a deadman's control valve which, on release, effectively prevents the delivery of high pressure water;

(e) this method should be used only where electrical equipment in the working area has been isolated;

(f) water should be prevented from entering electrical equipment in the working area;

(g) at the end of the work a competent person should ensure that it is safe to restore the electrical supply;

(h) suitable waterproof protective clothing and approved respiratory protective equipment will be required (see paras 32 to 52); and

(j) slurry will need to be collected as waste and subject to the advice of the water authority in whose area the work is taking place unfiltered water should be prevented from entering the drainage system.

### Control of asbestos dust during work

**25** The person carrying out the work should ensure that:

(a) dust unavoidably created in the process is kept within the immediate working area so far as is reasonably practicable (see paras 26 to 27);

(b) persons involved in the work are adequately protected by suitable approved respiratory protective equipment and clothing (see paras 32 to 52); and

(c) waste asbestos is transferred as soon as is reasonably practicable to suitably closed receptacles and not allowed to remain on floors or other surfaces beyond the end of the work period (see para 53(b) and (c)).

### Enclosure of the working area

**26** The working area should be enclosed with the objective of preventing the transfer of asbestos dust to other areas:

(a) all external openings from the working area including doors and windows should be sealed to prevent the escape of asbestos dust so far as is reasonably practicable. Adhesive tape may be used where effective dust-tight joints are required;

(b) where the working area forms only a part of the building:
  (i) it should be separated from the remainder;
  (ii) use should be made of existing partitions provided they can be sealed to prevent the escape of asbestos dust so far as is reasonably practicable;
  (iii) care should be taken to ensure that dust cannot escape at points where pipes and conduits pass through partitions;
  (iv) where it is not possible to make use of an existing partition, suitable impervious sheeting should be used to separate the working area from the remainder;
  (v) impervious sheeting used as an enclosing medium should be of adequate strength and firmly supported; and

(vi) arrangements should be made for the construction of suitable entry/exit locks in the enclosure into the working area.
(c) the enclosure should not impede means of escape in case of fire;
(d) notices should be posted at each entrance to the asbestos working area to warn persons that entry without suitable protective equipment is prohibited; and
(e) only essential personnel, wearing suitable personal protective equipment should be allowed to enter the asbestos working area.

27 Where it is not reasonably practicable to enclose the asbestos working area to prevent the escape of dust, physical obstruction such as ropes or barriers should be erected to mark its boundaries. Arrangements should be as follows:
(a) the barriers should be placed where it can be reasonably anticipated that persons outside the working area do not need respiratory protective equipment and protective clothing;
(b) sufficient notices should be placed at intervals along the barriers to show their purpose and to warn persons that entry into the asbestos working area without suitable protective equipment is prohibited; and
(c) only essential personnel, wearing suitable personal protective equipment should be allowed to enter the asbestos working area.

### Use of air extraction equipment

28 Air extraction equipment should where reasonably practicable be provided for the enclosed working area to:
(a) reduce levels of asbestos dust and improve environmental conditions; and
(b) provide a slight negative air pressure which will reduce the risk of dust escaping through imperfections in the enclosure.

29 Where air extraction equipment is provided:
(a) the equipment should be fitted with a high-efficiency filter so that persons near the discharged air should not need respiratory protective equipment or protective clothing;
(b) the filtered exhausted air should where reasonably practicable be vented to a point outside the building; and
(c) it should remain in operation for a period of at least fifteen minutes after completion of the work.

### Examination of enclosure

30 When an asbestos working area has been enclosed:
(a) the means provided to enclose the area should be properly maintained;
(b) a visual inspection of the enclosure should be carried out at the beginning of each working period;
(c) air monitoring should be undertaken outside the working area between one and two hours after starting asbestos stripping work to test the efficiency of the enclosure. Information about air sampling and subsequent analysis of the samples is contained in Guidance Note EH10*;
(d) and work is of short duration, air monitoring may not be reasonably practicable. A smoke generator may be used within the enclosure to give an indication of its effectiveness;
(e) any defect identified by inspection or test should be remedied as soon as practicable; and
(f) a record of inspections and tests should be maintained in a suitable form and kept available for inspection by an inspector appointed under the Health and Safety at Work etc. Act 1974 or a workers' representative.

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## Site Preparation

**31** Before work on the asbestos insulation is started the following procedures should be undertaken:

(a) moveable equipment within the working area should be cleaned with vacuum cleaning equipment to prevent the transfer of loose asbestos and then moved outside the area;

(b) fixed plant or equipment should be cleaned with vacuum cleaning equipment and where practicable covered with impermeable sheeting sealed with adhesive tape;

(c) the working area should be thoroughly cleaned using, where practicable, vacuum cleaning equipment fitted with a high-efficiency filter. If this is not practicable, a wet cleaning method should be used. In no circumstances should techniques which give rise to dust, such as dry sweeping be employed;

(d) floors and walkways in the working area should be covered with impermeable sheeting to make easier both the collection of loose asbestos during the work and subsequent cleaning when the work is finished;

(e) arrangements for enclosure of the working area should be made as described in paras 26 or 27; and

(f) where wet stripping techniques are to be used, arrangements should be made to prevent sludge containing asbestos entering the drainage system.

## Respiratory Protective Equipment

**32** Respiratory protective equipment should be:

(a) provided and used where asbestos insulation is disturbed;

(b) adequately maintained (see paras 39 to 42);

(c) suitable for the work being carried out (see paras 35 to 36); and

(d) suitable for the wearer (see paras 37 to 38).

**33** The employer should ensure that:

(a) all operatives who need to wear respiratory protective equipment during the course of their work are adequately trained to do so (see paras 41, 43, 78 and 80);

(b) suitable accommodation for respiratory protective equipment is provided and used; and

(c) arrangements allow an operator who finds that his respiratory protective equipment is defective to obtain a replacement without delay.

### Classes of respiratory protective equipment

**34** There are two classes of respiratory protective equipment:

(a) equipment which filters or absorbs airborne contaminants from the supply of breathing air reaching the wearer. Equipment of this type is usually termed a 'respirator';

(b) equipment which provides a source of uncontaminated air or oxygen to the wearer, either by means of an air line or from a self-contained source carried by the wearer. Equipment of this type is usually termed 'breathing apparatus'.

### Approved respiratory protective equipment

**35** The term 'approved respiratory protective equipment' refers to equipment approved for the time being by HM Chief Inspector of Factories. Such equipment is listed in the Schedule to the current Certificate of Approval (Respiratory Protective Equipment) which is reviewed annually by the Health and Safety Executive and published by HMSO as Form 2486.

**36** Persons who are required to provide respiratory protective equipment for use at work should be aware that such equipment is 'approved' under a number of specific statutory regulations in addition to the Asbestos Regulations 1969.

The hazards that each type of equipment is designed to cope with are indicated in the Schedule to the current Certificate of Approval (Respiratory Protective Equipment).

### Selection of respiratory protective equipment

**37** Useful guidance on selection, use and maintenance of respiratory protective equipment is contained in British Standard BS 4275: 1974 but only 'approved' equipment which is suitable for the anticipated conditions should be used.

**38** The selection of respiratory protective equipment for a particular person at work is not merely a question of selecting an approved item from the official list. The equipment should be suitable for the wearer and when deciding this the following should be considered:

(a) facial shape; human faces vary considerably in shape and size and great care should be taken to provide a good fit. If it does not fit properly the protection will be less than the level on which 'approval' was based;

(b) facial hair: where a wearer has facial hair, this may preclude a good seal. Positive pressure respiratory protective equipment may provide protection by the flow of air between the facepiece of the equipment and the wearer's face acting as a seal. However, this use of positive airflow is not the basis of the design of the unit and its effectiveness will depend upon the type of facial hair and the degree to which it prevents a good seal;

(c) oxygen deficiency: in atmospheres with a lack of oxygen, breathing apparatus will be required as the other forms of respiratory protective equipment provide no additional oxygen. Similarly, atmospheres containing fumes, gases or vapours may require greater respiratory protection than that provided by a particular respirator;

(d) comfort: the wearer should so far as is reasonably practicable be provided with a design of respiratory protective equipment which he finds comfortable to wear; and

(e) availability: a respirator for which spares are readily obtainable should be chosen. Ease of maintenance and an adequate range of sizes in the model selected are also important factors.

### Cleaning and maintenance

**39** Excess asbestos on the outside of the equipment should be removed by suitable vacuum cleaning so that asbestos dust is not liberated to the air but see also para 40 regarding manufacturer's instructions.

**40** Respirators should be disinfected, washed and cleaned at the end of every shift. They should be issued from and returned to a central point. After thorough cleaning, checks should be made on the condition of the face piece, head straps, inlet and exhaust valves. For positive pressure respirators fitted with battery driven air supplies, the battery should be recharged as necessary. Manufacturer's guidance should be followed at all times.

**41** Personnel engaged in respirator cleaning and maintenance should be properly trained.

**42** Breathing apparatus should be cleaned and maintained strictly in accordance with the manufacturer's instructions. In general, the same kind of detailed checks should be made as with respirators. This equipment is complicated and personnel should be specially trained in its maintenance.

### Use of respiratory protective equipment

**43** The part of respiratory protective equipment incorporating the facepiece should be a personal issue. Before it is passed to anyone else it should be thoroughly cleaned and disinfected.

**44** The user should be instructed in its use. Suppliers of equipment have a legal duty under Section 6 of the Health and Safety at Work etc. Act 1974 to provide adequate information in connection with its safe use.

### Accommodation for respiratory protective equipment

**45** Respiratory protective equipment should be put away in suitable containers or lockers. Where there is the possibility of contamination, a cleaned respirator may be conveniently sealed in a plastic bag. With a powered respirator or breathing apparatus it is recommended that the facepiece only be put into a plastic bag.

## Protective clothing

### Provison of protective clothing

**46** Protective clothing to prevent contamination of the body so far as is reasonably practicable should be provided for any person who is likely to need it.

**47** Protective clothing should incorporate the following features:
(a) overalls should be:
  (i) made from material which does not readily retain asbestos dust and prevents, so far as is reasonably practicable, its penetration;
  (ii) close fitting at the neck, wrists and ankles;
  (iii) without external pockets or unnecessary pleating or accessories; and
  (iv) wherever reasonably practicable, with integral headcovering.
(b) headcovering which is not part of the overall should be:
  (i) made from material which does not readily retain asbestos dust and prevents, so far as is reasonably practicable, its penetration; and
  (ii) close fitting.
(c) footwear should be of a plain design so that asbestos is not retained in crevices.

**48** For work with wet techniques, protective clothing should be waterproof.

**49** Clean spare clothing of appropriate sizes should be available when circumstances demand.

**50** Protective clothing should be worn only in the asbestos working area and the contaminated side of the wash/changing rooms, but see para 63.

### Cleaning of protective clothing

**51** Protective clothing should:
(a) be cleaned by vacuum-cleaning equipment whenever the wearer leaves the asbestos working area;
(b) be laundered as frequently as is necessary to ensure its cleanliness and efficiency; and
(c) before it is sent to the laundry, be sealed in containers strong enough to remain dust tight during transit and which are boldly marked 'asbestos contaminated clothing'.

**52** Asbestos contaminated clothing should be sent only to launderers who:
(a) are equipped to deal with asbestos contaminated clothing; and
(b) know the risk to health from asbestos.

## Work procedures

### Asbestos removal

**53** Procedures for removal of asbestos will vary depending on the method of work selected (see paras 19 to 24) but should include the following:
(a) work should not commence until:
  (i) bulk sampling of the insulation has been completed and the results of the analysis obtained (see paras 1 to 2);
  (ii) where the samples are found to contain crocidolite, HM Factory Inspectorate has been notified and 28 days (or lesser agreed time) have elapsed (see para 3);
  (iii) arrangements for disposal of the insulation have been made (see paras 54 to 58);
  (iv) all tools and equipment necessary for the work are to hand;
  (v) effective arrangements have been made to enclose the working area;
  (vi) for wet stripping techniques, suitable arrangements for containing, filtering and disposal of waste water have been made; and

(vii) for wet stripping techniques, suitable arrangements have been made to ensure that the working area is electrically safe.

(b) insulation should not be permitted to remain on the floors or other surfaces of the workplace at the end of the working period and should be transferred as soon as is reasonably practicable to a suitable receptacle. A container could be regarded as suitable:
  (i) when it is made from an impermeable material;
  (ii) when it is strong enough to remain dust tight even under wet conditions; and
  (iii) if intended for waste insulation containing crocidolite asbestos, is boldy marked 'BLUE ASBESTOS—DO NOT INHALE DUST'. The marking should be:
    (i) durable; and
    (ii) of a type which cannot become detached from its container.

(c) when each container is filled:
  (i) it should be sealed to prevent the escape of dust during handling, transportation and disposal;
  (ii) its external surface should be cleaned; and
  (iii) it should be removed from the immediate working area to await removal to an authorised waste tip.

(d) a system should be set up to ensure that the individual containers awaiting removal to an authorised waste tip are kept in an area set aside for storage;

(e) after completion of the stripping work all surfaces from which insulation has been removed should be wire brushed when necessary and sealed;

(f) before removing the enclosure around the work area:
  (i) if wet stripping techniques have been used, the total asbestos working area should be thoroughly washed and allowed to dry;
  (ii) in all cases, the area when dry should be thoroughly cleaned using a vacuum cleaner fitted with a high efficiency filter; and
  (iii) the floors which cannot be effectively cleaned should be sprayed with a sealant.

(g) all equipment used in the work should be cleaned and removed from the area;

(h) temporary enclosing elements should be dismantled and disposed of as contaminated waste. Spraying with a sealant prior to dismantling will help to prevent the spread of contamination;

(j) a final check should be carried out to ensure that no dust or debris remains on the floors or surfaces as a result of the dismantling operation; and

(k) air monitoring should be carried out to ensure levels of asbestos in air are as low as is reasonably practicable and below the appropriate hygiene standard. Information about air sampling is contained in Guidance Note EH10*.

## Asbestos Waste Disposal

### Guidance

**54** Detailed guidance on asbestos waste disposal is contained in the Department of the Environment Waste Management Paper No. 18 *Asbestos Wastes—A Technical Memorandum on Arisings and Disposal including a Code of Practice.*

### Notification

**55** Asbestos waste should be disposed of only:

(a) at a waste disposal site licenced for the purpose by the appropriate waste disposal authority; and

(b) in accordance with the requirements of that authority.

**56** In England the appropriate waste disposal authority will be the county council where the waste disposal site is located. In Scotland and Wales the appropriate district council will carry out the same function.

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**57** At least three working days notice should be given to the waste disposal authority by any person who wishes to dispose of asbestos waste. The following information should be provided:

(a) address of premises from which the waste is to be removed;
(b) address of licenced site to which the waste is to be removed;
(c) the nature and composition of the waste;
(d) the quantity of waste to be deposited; and
(e) the size, number and type of the waste containers.

### Transportation of waste

**58** Before moving waste asbestos the haulier should ensure that so far as is reasonably practicable:

(a) suitable vehicles are available;
(b) the release of asbestos dust is prevented;
(c) effective arrangements exist for dealing with accidental spillage; and
(d) effective arrangements exist for decontamination of vehicles used for transport. Arrangements should ensure that dust is not released during decontamination.

## Hygiene Facilities

### Provision of hygiene facilities

**59** Adequate provision should be made for hygiene facilities which should include:

(a) arrangements for removal and replacement of clothing worn to and from work together with storage for such clothing;
(b) arrangements to ensure that the airflow is such as to prevent the movement of contaminated air into the clean side of the facility;
(c) arrangements for removal and replacement of protective clothing and respiratory protective equipment together with storage for such clothing and equipment;
(d) showering facilities which include provision for disposal of contaminated water as agreed with the appropriate water authority; and
(e) suitable means for maintaining an adequate temperature in the facilities.

**60** In order to avoid further contamination, the facilities should be laid out in a way that deters people who use them returning to the 'dirty' conditions area.

### Type of accommodation

**61** Purpose built mobile units for some or all hygiene facilities are acceptable for transient work provided they incorporate the relevant features referred to in paras 59 to 60, 62 and 64 to 67.

**62** To ensure easy cleaning of the hygiene facilities, surfaces of floors, ceilings, walls and fittings should be smooth and impervious.

### Location of facilities

**63** The hygiene facilities should, whenever possible, adjoin the asbestos working area to prevent the contamination of other areas. When this is not possible:

(a) they should be as close to the working area as circumstances will allow; and
(b) supplementary facilities should be provided next to the working area which allow a worker to: –
    (i) vacuum clean his protective equipment;
    (ii) remove and store first protective clothing and then respiratory protective equipment; and
    (iii) don transit clothing to allow him to go to the main hygiene facilities. Colour coding of transit clothing will avoid confusing it with protective clothing.

### Showering facilities

**64** Sufficient showering facilities should be available and provided with:
(a) an adequate supply of running hot and cold or warm water;
(b) soap or other suitable means of cleaning;
(c) clean towels or other suitable means of drying; and
(d) nailbrushes.

### Storage for protective equipment and personal off-site clothing

**65** Storage arrangements should include:
(a) separate accommodation for storage of protective equipment and personal off-site clothing;
(b) sufficient personal security lockers;
(c) hangers, hooks or other storage arrangements conveniently placed; and
(d) a suitable mirror in the protective equipment area (dirty area) to enable a worker to fit his respiratory protective equipment properly.

### Communication between the clean and dirty areas

**66** Layout should be such that a person moving between the two areas is required to pass through the washing facilities.

### Maintenance and cleaning

**67** Effective arrangements should be made for cleaning and maintaining the facilities. Cleaning will probably need to be carried out at least daily.

### Maintenance and testing of plant and equipment

**68** The maintenance should ensure that persons are adequately protected from asbestos fibre and that any defect which could result in a reduction of the efficiency of plant and equipment is detected and remedied.

**69** The plant and equipment to be maintained will include:
(a) air extraction equipment;
(b) respiratory protective equipment;
(c) protective clothing;
(d) hygiene facilities;
(e) vacuum cleaning equipment; and
(f) the enclosure of the asbestos working area.

**70** To identify the need for maintenance, the arrangements should include:
(a) visual inspections to detect obvious defects; and
(b) more thorough examination and tests using instruments where appropriate to assess the efficiency of plant and equipment.

**71** The intervals between visual inspections and thorough examinations and tests should be determined according to the individual work situation and;
(a) a general visual inspection should be carried out at least once a shift; and
(b) respiratory protective equipment should be checked before and after each occasion it is used, paying attention to the manufacturer's instructions. Self-contained and airline breathing apparatus should be thoroughly examined and tested at least once a month by a competent person.

**72** Procedures for remedying defects should state provisions for replacement or repair. When immediate action is not necessary and the equipment continues in use, specific time limits should be set for completion of remedial action.

**73** Inspection and maintenance procedures should where feasible be integrated with the normal work activity and may be carried out by operators or supervisors if competent to do so. Visual inspections may be carried out by operators as part of their daily task so that obvious defects may be identified at an early stage. Responsibility for the thorough examination and test of equipment should be assigned to a person with appropriate skills.

## Records

**74** Records should be kept which relate to:

(a) maintenance and repair of all plant and equipment including protective clothing and respiratory protective equipment;
(b) air monitoring (see paras 30 (c) and 53 (k)); and
(c) training (see paras 78 to 80).

**75** Records should:

(a) where possible, follow a standard format;
(b) be kept up to date; and
(c) preferably be kept on site but, where the work is itinerant, they may be kept at a designated office.

**76** As an aid to record keeping, all plant and articles to which records relate should be clearly identified.

**77** The following information should form the basis of appropriate records:

(a) name and address of employer;
(b) name and address of site;
(c) clear identification of plant, article, location or person;
(d) date of maintenance, repair or monitoring;
(e) defect noted, remarks or level of asbestos in air;
(f) action taken and date; and
(g) name, status and dated signature of person carrying out the examination, inspection etc.

## Training and Supervision

**78** Particular emphasis should be given to:

(a) correct use of equipment and adherence to the systems of work laid down;
(b) the need for workplace cleanliness, and the need to practice a high standard of personal hygiene; and
(c) the need to report any defect in equipment or inadequacy in a system of work which puts people's health at risk.

**79** Any person who carries out any air monitoring or maintenance task which requires the use of instruments should be given additional information, instruction and training concerning:

(a) the object of using instruments; and
(b) their correct use.

**80** Training should also be given as follows:

(a) new employees should receive adequate instruction before they start on work involving asbestos; and
(b) refresher training should be given as appropriate.

### Relevant legislation

1 The Asbestos Regulations 1969 apply to all factories and to certain other premises to which Part VII of the Factories Act 1961 applies including building operations, works of engineering construction, electrical stations and ships under construction or repair etc, where a process involving asbestos is undertaken, except a process in which asbestos dust cannot be given off. 'Asbestos' is defined in Regulation 2(2) as meaning 'any of the following minerals, that is to say crocidolite, amosite, chrysotile, fibrous anthophyllite and any mixture containing any of the said minerals'. 'Asbestos dust' is defined in Regulation 2 as 'dust consisting of or containing asbestos to such an extent as is liable to cause danger to the health of employed persons'.

2 Some asbestos work activities will not attract the Asbestos Regulations because the Factories Act 1961 does not apply to the premises in which the work is being carried out. Nevertheless, the Health and Safety at Work etc. Act 1974 will always apply and in order to comply with the general obligations under Sections 2, 3, 4 and 7 so far as is reasonably practicable, the same methods of work and the same standards of health and safety should be adopted as if the regulations applied.

## The Asbestos Regulations 1969 (S.I. 1969 No. 690)

### PART I Application, Interpretation and General

*Citation, commencement and revocation*

1(1) These Regulations may be cited as the Asbestos Regulations 1969 and shall come into operation on 14 May 1970.

(2) The Asbestos Industry Regulations 1931 are hereby revoked.

(3) The Shipbuilding and Ship-repairing Regulations 1960 shall have effect as if the following provisions were omitted—

(a) in Regulation 3(2), the definition of the word 'asbestos';
(b) in Regulation 76(1), sub-paragraphs (a) to (d); and
(c) in Regulation 77, paragraphs (a) to (d).

*Interpretation*

2(1) The Interpretation Act 1889 shall apply to the interpretation of these Regulations as it applies to the interpretation of an Act of Parliament, and as if these Regulations and the Regulations hereby revoked were Acts of Parliament.

(2) In these Regulations, unless the context otherwise requires, the following expressions have the meanings hereby assigned to them respectively, that is to say—

'approved' means approved for the time being by certificate of the Chief Inspector;

'asbestos' means any of the following minerals, that is to say, crocidolite, amosite, chrysotile, fibrous anthophyllite and any mixture containing any of the said minerals;

'factory' includes any premises and place to which these Regulations apply;

'protective clothing' means overalls and headgear, which (in either case) will when worn exclude asbestos dust;

'the principal Act' means the Factories Act 1961 as amended by or under any other Act.

(3) References in these Regulations to asbestos dust shall be taken to be references to dust consisting of or containing asbestos to such an extent as is liable to cause danger to the health of employed persons.

*Application of Regulations*

3(1) These Regulations shall apply to the following premises and places in which any process to which these Regulations apply is carried on, that is to say, factories and all premises and places to which the provisions of Part IV of the principal Act with respect to special regulations for safety and health are applied by the following provisions of that Act, namely, section 123 (which relates to electrical stations), section 124 (which relates to institutions), so much of section 125 as relates to warehouses other than warehouses within any dock or forming part of any wharf or quay, section 126 (which relates to ships) and section 127 (which relates to building operations and works of engineering construction).

(2) These Regulations apply to every process involving asbestos or any article composed wholly or partly of asbestos, except a process in connection with which asbestos dust cannot be given off.

(3) The provisions of these Regulations are in substitution for the provisions of so much of section 1(2) of the principal Act as relates to the cleaning of parts of factories, being parts in which any process to which these Regulations apply is carried on or into any asbestos dust from any such process carried on in the factory is liable to escape, and of so much of section 63(1) of that Act as relates to the measures to be taken against asbestos dust, but save as aforesaid are in addition to and not in substitution for or in diminution of other requirements imposed by or under the principal Act.

*Certificates of exemption*

4 The Chief Inspector may (subject to such conditions, if any, as may be specified therein) by certificate in writing (which he may in his discretion revoke at any time) exempt from all or any of the requirements of these Regulations—

(a) any factory or part of any factory; or
(b) any class or description of factories or of parts thereof; or
(c) any machine, plant, apparatus or process or any class or description of machines, plant, apparatus or processes; or
(d) the employment of any person or class or description of persons,

if he is satisfied that the requirements in respect of which the exemption is granted are not necessary for the protection of persons employed or are impracticable.

*Obligations under Regulations*

5(1) Except in the case of any place where building operations or works of engineering construction are carried on it shall be the duty—

(a) of every employer (whether or not an occupier) who is undertaking in a factory any process to which these Regulations apply to comply with the requirements of these Regulations in relation to any person employed by him, any plant or material under his control, and any part of the factory in which he is carrying on the process or into which asbestos dust in connection with that process is liable to escape;

(b) of every occupier of any factory (whether or not such an employer as aforesaid) where any such process is being carried on to comply with the requirements of Regulations 8, 18 and 19 in relation to any person employed in the factory (other than any person employed by an employer who is undertaking in the factory any process to which these Regulations apply) and with the requirements of Part III of the Regulations; and

(c) of every person who is undertaking in a factory any process to which these Regulations apply and who employs no other person in the carrying on of that process to comply, for the protection of employed persons working there, with the requirements of these Regulations (other than Regulations 8, 14 and 18 to 20) with which he would have to comply if he were the employer of a person doing there the work which he does himself.

(2) In the case of places where building operations or works of engineering construction are carried on it shall be the duty of every contractor and of every employer who is undertaking any process to which these Regulations apply to comply with the requirements of these Regulations in relation to any person employed by him and any person employed there who is liable to be exposed to asbestos dust in connection with any process carried on by the contractor or employer (as the case may be), and in relation to any plant or material under his control and any part of the site where he is carrying on the process or where asbestos dust in connection with that process is liable to escape.

(3) It shall be the duty of every person employed to comply with the requirements of such of these Regulations as relate to the performance of or refraining from an act by him.

*Notifications*

6(1) Where at the date of the coming into operation of these Regulations a person is undertaking in a factory any process involving crocidolite (including the removal from any surface of lagging consisting of or containing crocidolite), he shall within 28 days of that date give written notice to the inspector for the district that he is undertaking such a process and of the address of the factory at which he is doing so.

(2) Before a person first begins after the coming into operation of these Regulations to undertake in a factory any such process as aforesaid, he shall give not less than 28 days written notice to the inspector for the district, or such shorter notice as the inspector may agree to accept, of the date on which and of the address of the factory at which he will begin to do so.

## PART II Exhaust ventilation and protective equipment

*Exhaust ventilation*

7(1) Subject to the provisions of the next following Regulation, no process to which these Regulations apply shall be carried on in any factory unless equipment is provided, maintained and used which produces an exhaust draught which prevents the entry into the air of any workplace of asbestos dust:

Provided that the foregoing requirements of this Regulation shall not apply where any such process is carried on in such a manner as to be as safe as it would be if the said requirements were complied with.

(2) Exhaust ventilation equipment provided in accordance with this Regulation shall while any work of maintenance or repair to the machinery, apparatus or other plant or equipment in connection with which it is provided is being carried on, be kept in use so as to produce an exhaust draught which prevents the entry into the air of any workplace of asbestos dust.

(3) Exhaust ventilation equipment provided in accordance with this Regulation shall be inspected at least once in every seven days and shall be thoroughly examined and tested by a competent person at least once in every period of fourteen months, and a report of the results of every such examination and test containing approved particulars and signed by the person making or responsible for the carrying out of the examination and test shall be made within fourteen days after the examination and test.

(4) Every such report as aforesaid shall be attached to the general register and be preserved and kept available for inspection by any inspector for a period of two years after it is made.

*Protective equipment*

8(1) Where in any factory the requirements of paragraph (1) or (2) of the last foregoing Regulation apply, but it is impracticable to comply with those requirements, there shall be provided for the use of each person employed in any part of the factory being a part into which asbestos dust from a process to which these Regulations apply is liable to escape—

(a) approved respiratory protective equipment; and
(b) protective clothing

(2) All respiratory protective equipment and protective clothing provided in pursuance of the foregoing paragraph of this Regulation shall be maintained.

(3) All respiratory protective equipment and protective clothing so provided shall be used by the persons for whom they are provided while employed in any such part of the factory as aforesaid.

(4) No respiratory protective equipment so provided which has been worn by a person shall be provided for the use of another person unless it has been thoroughly cleaned and disinfected since last being worn.

(5) No person shall be employed to perform any work for which respiratory protective equipment is provided in pursuance of this Regulation unless he has been fully instructed in the proper use of that equipment.

## PART III Cleanliness of premises and plant

### *Duty to keep clean*

9 All machinery, apparatus, work benches and other plant and equipment used in any factory for the purposes of any process to which these Regulations apply, all external surfaces of exhaust ventilation equipment provided in pursuance of these Regulations and all floors, inside walls, ceilings, ledges and other internal surfaces of any part of a building or of any ship, being a part in which any process to which these Regulations apply is carried on or into which asbestos dust from any such process carried on in the factory is liable to escape, shall, so far as is practicable, be kept in a clean state and free from asbestos waste and dust in accordance with the provisions of this Part of these Regulations.

### *Cleaning by dustless method*

10 The cleaning required by the last foregoing Regulation shall, so far as is practicable, be carried out—

(a) by means of vacuum cleaning equipment so designed and constructed and so used; or
(b) by some other suitable method such,

that asbestos dust neither escapes nor is discharged into the air of any workplace.

### *Cleaning where cleaning by dustless method is impracticable*

11(1) Insofar as it is impracticable to carry out the cleaning required by Regulation 9 in accordance with the provisions of the last foregoing Regulation, such cleaning shall be carried out in accordance with the provisions of this Regulation.

(2) Protective clothing and approved respiratory protective equipment shall be provided for and used by every person present in any part of a factory while such cleaning is being carried out in that part otherwise than in accordance with Regulation 10.

(3) No respiratory protective equipment so provided which has been worn by a person shall be provided for the use of another person unless it has been thoroughly cleaned and disinfected since last being worn.

(4) No person shall be employed to perform any work for which respiratory protective equipment is provided in pursuance of this Regulation unless he has been fully instructed in the proper use of that equipment.

(5) Any surface on which asbestos waste or dust is deposited as a result of the carrying out of cleaning in pursuance of this Regulation, not being a surface of the cleaning equipment used, shall be cleaned forthwith.

*Vacuum cleaning equipment*

12 Vacuum cleaning equipment used for cleaning in accordance with the provisions of this Part of these Regulations shall be maintained and have all external surfaces kept in a clean state and free from asbestos waste and dust.

*Requirements as to construction of buildings before first use for certain processes*

13 After the date of the coming into operation of these Regulations no process specified in the Schedule to these Regulations shall be carried on in a building by the occupier of the building unless any part of such building where any such process is carried on and has not previously been carried on—

(a) is so constructed that all its interior surfaces are smooth and impervious and is so designed and constructed as to have in it as few surfaces as is practicable on which asbestos dust can settle; and

(b) has a vacuum cleaning system which has filters and a source of suction located at a fixed central point with pipes throughout the building fitted with suitably placed inlets to which portable cleaning implements can be attached and is a system which is so designed and constructed that asbestos dust cannot escape or be discharged from it into the air of any workplace:

Provided that the requirements of this Regulation shall not apply where a process or processes so specified are carried on in a factory for a total number of hours not exceeding eight in any week.

*Cleanliness of accommodation for clothing*

14 Where there is provided for the use of employed persons under section 59 (accommodation for clothing) of the principal Act or under any regulations made under that Act accommodation for clothing not worn during working hours, the accommodation so provided shall be such or shall be so situated that asbestos dust is not deposited on any such clothing in the said accommodation.

## PART IV Storage and distribution

*Storage*

15 All loose asbestos in a factory shall when not in use be kept in suitable closed receptacles which prevent the escape of asbestos dust therefrom, and all asbestos waste in a factory shall, when stored, be kept in such receptacles.

*Distribution, etc.*

16 No loose asbestos or asbestos waste shall be despatched from or as far as is practicable received into a factory except in suitable closed receptacles which prevent the escape of asbestos dust therefrom or shall be distributed within a factory except in such receptacles or in a totally enclosed system of conveyance.

*Marking of receptacles*

17 All such receptacles as aforesaid shall, where they contain crocidolite, be clearly and boldly marked with the words 'Blue asbestos—do not inhale dust'.

## PART V Accommodation for and cleaning of protective equipment

*Accommodation, etc. for protective clothing and respiratory protective equipment*

18(1) Suitable accommodation in a conveniently accessible position shall be provided for the use of persons employed when putting on or taking off respiratory protective equipment and protective clothing provided in pursuance of these Regulations and for the storage of such clothing and equipment when it is not in use.

(2) All protective clothing and respiratory protective equipment which has been provided in pursuance of these Regulations for the use of persons employed shall when not required for use be kept in the accommodation for storage provided in pursuance of paragraph (1) of this Regulation, except when it is necessary for it to be removed for cleaning or replacement.

(3) So far as practicable, the same protective clothing shall (until it becomes necessary to replace it) be available for use by a person employed on each occasion on which he requires to wear it in pursuance of these Regulations.

*Cleaning of protective clothing*

19(1) All protective clothing provided in pursuance of these Regulations shall at suitable intervals be cleaned.

(2) The said cleaning shall be carried out within the factory where the clothing is provided:

Provided that this requirement shall not apply in the case of protective clothing which before despatch from the factory for cleaning is properly packed in suitable containers which prevent the escape of asbestos dust therefrom and the containers in which it is packed are clearly and boldy marked with the words 'Asbestos contaminated clothing'.

## PART VI Young persons

*Employment of young persons*

20 No young person shall be employed—

(a) in any process to which these Regulations apply or in any part of a factory into which asbestos dust from any such process carried on in the factory would otherwise be liable to escape unless the requirements of Regulation 7 are complied with in respect of that process; or

(b) in carrying out any cleaning in accordance with Part III of these Regulations otherwise than by means of vacuum cleaning equipment or other suitable method in accordance with the provisions of Regulation 10.

BARBARA CASTLE
*First Secretary of State and Secretary*
*of State for Employment and Productivity*
13 May 1969

## SCHEDULE Regulation 13

*Processes specified for the purposes of Regulation 13*

1 Breaking, crushing, disintegrating, opening and grinding of asbestos, and the mixing of asbestos (including the mixing of asbestos with any other material) or the sieving of asbestos, and all processes involving manipulation of asbestos incidental thereto.

2 All processes in the manufacture of yarn or cloth composed of asbestos or asbestos mixed with any other material, including preparatory and finishing processes.

3 The making of insulation slabs or sections, composed wholly or partly of asbestos, and processes incidental thereto.

4 The making and repairing of insulating mattresses, composed wholly or partly of asbestos, and processes incidental thereto.

5 Any other process in the manufacture of articles composed wholly or partly of asbestos in connection with which asbestos dust is given off.

**Explanatory Note** (*This Note is not part of the Regulations*)

These Regulations impose requirements for the safety and welfare of persons employed in factories and in other premises and places to which the Factories Act 1961 applies, where processes are carried on which involve asbestos or any article composed wholly or partly of asbestos and are capable of giving rise to asbestos dust. The Regulations require that the processes be carried on under an exhaust draught or in some other equally safe way, or that protective clothing and respiratory protective equipment be provided for the use of persons employed. The Regulations also impose requirements as to the cleaning of premises and plant, the construction of buildings newly used for the processes, the storage and distribution of asbestos, the accommodation to be provided for protective equipment and the cleaning of protective clothing. The employment of young persons in connection with processes to which the Regulations apply and in cleaning work is prohibited except in specified circumstances. The regulations also require that notification of processes involving crocidolite be sent to the inspector for the district.

The Asbestos Industry Regulations 1931 and certain provisions concerning asbestos of the Shipbuilding and Ship-repairing Regulations 1960 are revoked.

# Extracts from the Health and Safety at Work etc. Act 1974

## General duties

2.(1) It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees.

(2) Without prejudice to the generality of an employer's duty under the preceding subsection, the matters to which that duty extends include in particular—

(a) the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health;

(b) arrangements for ensuring, so far as is reasonably practicable, safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances;

(c) the provision of such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees;

(d) so far as is reasonably practicable as regards any place of work under the employer's control, the maintenance of it in a condition that is safe and without risks to health and the provision and maintenance of means of access to and egress from it that are safe and without such risks;

(e) the provision and maintenance of a working environment for his employees that is, so far as is reasonably practicable, safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work.

(3) Except in such cases as may be prescribed, it shall be the duty of every employer to prepare and as often as may be appropriate revise a written statement of his general policy with respect to the health and safety at work of his employees and the organisation and arrangements for the time being in force for carrying out that policy, and to bring the statement and any revision of it to the notice of all of his employees.

(4) Regulations made by the Secretary of State may provide for the appointment in prescribed cases by recognised trade unions (within the meaning of the regulations) of safety representatives from amongst the employees, and those representatives shall represent the employees in consultations with the employers under subsection (6) below and shall have such other functions as may be prescribed.

(5) Repealed

(6) It shall be the duty of every employer to consult any such representatives with a view to the making and maintenance of arrangements which will enable

him and his employees to co-operate effectively in promoting and developing measures to ensure the health and safety at work of the employees, and in checking the effectiveness of such measures.

(7) In such cases as may be prescribed it shall be the duty of every employer, if requested to do so by the safety representatives mentioned in subsection (4) above, to establish, in accordance with regulations made by the Secretary of State, a safety committee having the function of keeping under review the measures taken to ensure the health and safety at work of his employees and such other functions as may be prescribed.

### General duties of employers and self-employed to persons other than their employees

3.(1) It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety.

(2) It shall be the duty of every self-employed person to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that he and other persons (not being his employees) who may be affected thereby are not thereby exposed to risks to their health or safety.

(3) In such cases as may be prescribed, it shall be the duty of every employer and every self-employed person, in the prescribed circumstances and in the prescribed manner, to give to persons (not being his employees) who may be affected by the way in which he conducts his undertaking the prescribed information about such aspects of the way in which he conducts his undertaking as might affect their health or safety.

### General duties of persons concerned with premises to persons other than their employees

4.(1) This section has effect for imposing on duties in relation to those who—

(a) are not their employees; but

(b) use non-domestic premises made available to them as a place of work or as a place where they may use plant or substances provided for their use there;

and applies to premises so made available and other non-domestic premises used in connection with them.

(2) It shall be the duty of each person who has, to any extent, control of premises to which this applies or of the means of access thereto or egress therefrom or of any plant or substance in such premises to take such measures as it is reasonable for a person in his position to take to ensure, so far as is reasonably practicable, that the premises, all means of access thereto or egress therefrom available for use by persons using the premises, and any plant or substance in the premises or, as the case may be, provided for use there, is or are safe and without risks to health.

(3) Where a person has, by virtue of any contract or tenancy, an obligation of any extent in relation to—

(a) the maintenance or repair of any premises to which this section applies or any means of access thereto or egress therefrom; or

(b) the safety of or the absence of risks to health arising from plant or substances in any such premises;

that person shall be treated, for the purposes of subsection (2) above, as being a person who has control of the matters to which his obligation extends.

(4) Any reference in this section to a person having control of any premises or matter is a reference to a person having control of the premises or matter in connection with the carrying on by him of a trade, business or other undertaking (whether for profit or not).

## General duties of employees at work

7. It shall be the duty of every employee while at work—

(a) to take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omission at work; and

(b) as regards any duty or requirement imposed on his employer or any other person by or under any of the relevant statutory provisions to co-operate with him so far as is necessary to enable that duty or requirement to be performed or complied with.

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